

The U.S. Media and Climate Confusion

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Public Perception of Climate Science

- In October 2009, a Pew Center poll found 43% of Americans didn't think there was "solid evidence the Earth is warming" [ref 1]
- Yet most climate scientists have agreed that Earth is warming, and humans are the main cause, since the early 1990s [refs 2, 3, 4, 5]
- Why is the public perception of climate so different from that of scientists?

ESSAY

BEYOND THE IVORY TOWER

The Scientific Consensus on Climate Change

Naomi Oreskes

This year's essay series highlights the benefits that scientists, science, and technology have brought to society throughout history.

Policy-makers and the media, particularly in the United States, frequently assert that climate science is highly uncertain. Some have used this as an argument against adopting strong measures to reduce greenhouse gas emissions. For example, while discussing a major U.S. Environmental Protection Agency report on the risks of climate change, then-EPA administrator Christine Whitman argued, "As [the report] went through review, there was less consensus on the science and conclusions on climate change" (1). Some corporations whose revenues might be adversely affected by controls on carbon dioxide emissions have also alleged major uncertainties in the science (2). Such statements suggest that there might be substantive disagreement in the scientific community about the reality of anthropogenic climate change. This is not the case.

The scientific consensus is clearly expressed in the reports of the Intergovernmental Panel on Climate Change (IPCC). Created in 1988 by the World Meteorological Organization and the United Nations Environmental Programme, IPCC's purpose is to evaluate the state of climate science as a basis for informed policy action, primarily on the basis of peer-reviewed and published scientific literature (3). In its most recent assessment, IPCC states unequivocally that the consensus of scientific opinion is that Earth's climate is being affected by human activities: "Human activities ... are modifying the concentration of atmospheric constituents ... that absorb or scatter radiant energy. ... [M]ost of the observed warming over the last 50 years is likely to have been due to the increase in greenhouse gas concentrations" [p. 21 in (4)].

IPCC is not alone in its conclusions. In recent years, all major scientific bodies in the United States whose members' expertise bears directly on the matter have issued similar statements. For example, the National Academy of Sciences report, *Climate Change Science: An Analysis of Some Key Questions*, begins: "Greenhouse gases are accumulating in Earth's atmosphere as a result of human activities, causing surface air temperatures and subsurface ocean temperatures to rise" [p. 1 in (5)]. The report explicitly asks whether the IPCC assessment is a fair summary of professional scientific thinking, and answers yes: "The IPCC's conclusion that most of the observed warming of the last 50 years is likely to have been due to the increase in greenhouse gas concentrations accurately reflects the current thinking of the scientific community on this issue" [p. 3 in (5)].

Others agree. The American Meteorological Society (6), the American Geophysical Union (7), and the American Association for the Advancement of Science (AAAS) all have issued statements in recent years concluding that the evidence for human modification of climate is compelling (8). The drafting of such reports and statements involves many opportunities for comment, criticism, and revision, and it is not likely that they would diverge greatly from the opinions of the societies' members. Nevertheless, they might downplay legitimate dissenting opinions. That hypothesis was tested by analyzing 928 abstracts, published in refereed scientific journals between 1993 and 2003, and listed in the ISI database with the keywords "climate change" (9).

The 928 papers were divided into six categories: explicit endorsement of the consensus position, evaluation of impacts, mitigation proposals, methods, paleoclimate analysis, and rejection of the consensus position. Of all the papers, 75% fell into the first three categories, either explicitly or implicitly accepting the consensus view; 25% dealt with methods or paleoclimate, taking no position on current anthropogenic climate change. Remarkably, none of the papers disagreed with the consensus position.

Admittedly, authors evaluating impacts, developing methods, or studying paleoclimatic change might believe that current

climate change is natural. However, none of these papers argued that point.

This analysis shows that scientists publishing in the peer-reviewed literature agree with IPCC, the National Academy of Sciences, and the public statements of their professional societies. Politicians, economists, journalists, and others may have the impression of confusion, disagreement, or discord among climate scientists, but that impression is incorrect.

The scientific consensus might, of course, be wrong. If the history of science teaches anything, it is humility, and no one can be faulted for failing to act on what is not known. But our grandchildren will surely blame us if they find that we understood the reality of anthropogenic climate change and failed to do anything about it.

Many details about climate interactions are not well understood, and there are ample grounds for continued research to provide a better basis for understanding climate dynamics. The question of what to do about climate change is also still open. But there is a scientific consensus on the reality of anthropogenic climate change. Climate scientists have repeatedly tried to make this clear. It is time for the rest of us to listen.

References and Notes

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3. See www.ipcc.ch/about/about.htm.
4. J. J. McCarthy et al., eds., *Climate Change 2007: Impacts, Adaptation, and Vulnerability* (Cambridge Univ. Press, Cambridge, 2007).
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6. American Meteorological Society, *Bull. Am. Meteorol. Soc.* 84, 508 (2003).
7. American Geophysical Union, *Eos* 84 (51), 574 (2003).
8. See www.aasnet.com/aaas/pages/stm0202.html.
9. The first year for which the database consistently published abstracts was 1993. Some abstracts were deleted from our analysis because, although the authors had put "climate change" in their key words, the paper was not about climate change.
10. This essay is excerpted from the 2004 George Sarton Memorial Lecture "Consensus in science: How do we know we're not wrong?" presented at the AAAS meeting on 13 February 2004. I am grateful to AAAS and the History of Science Society for their support of this lecture, to my research assistants S. Lutz and G. Law, and to D. C. Agnew, K. Bantz, J. R. Fleming, M. T. Greene, H. Leifer, and R. C. J. Somerville for helpful discussions.

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Two Threads to This Story

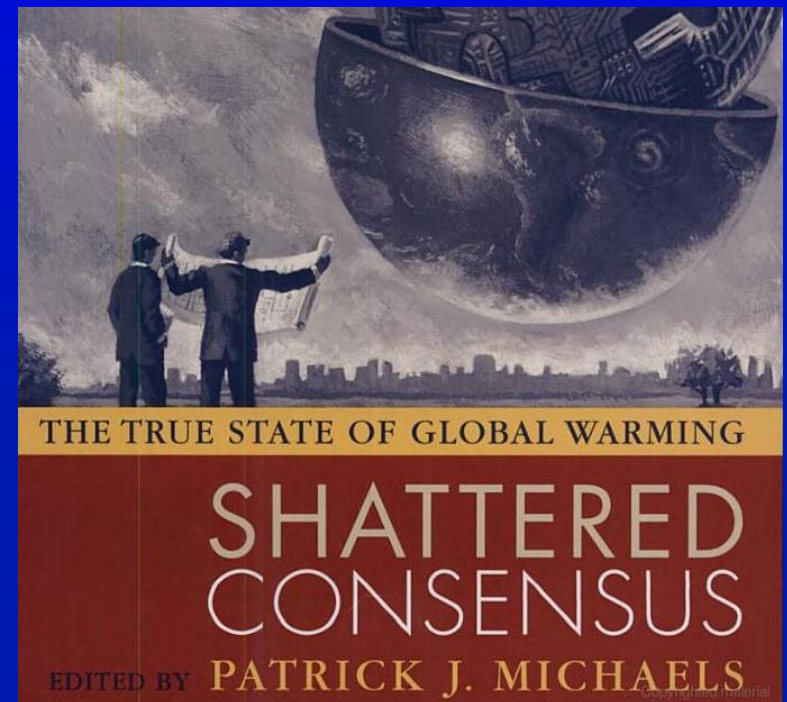
- Privately-funded think tanks opposed to environmental regulation
- The journalistic norm of “balance”

Think Tanks and Skepticism

- In the 1970s and 1980s, individual and corporate donors created a network of “free market” think tanks, most in Washington, D.C.
- They formulate “free market” policy proposals for legislators
- They actively cultivate media contacts

Think Tanks and Skepticism

- Created a literature of health & environmental skepticism, including skepticism of climate change
- A 2008 study found:
 - 110 environmentally skeptical books in print (U.S.)
 - 101 had ties to these foundations [ref 8]



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Skepticism and the Media

Balance as bias: global warming and the US prestige press[☆]

Maxwell T. Boykoff^{a,*}, Jules M. Boykoff^b

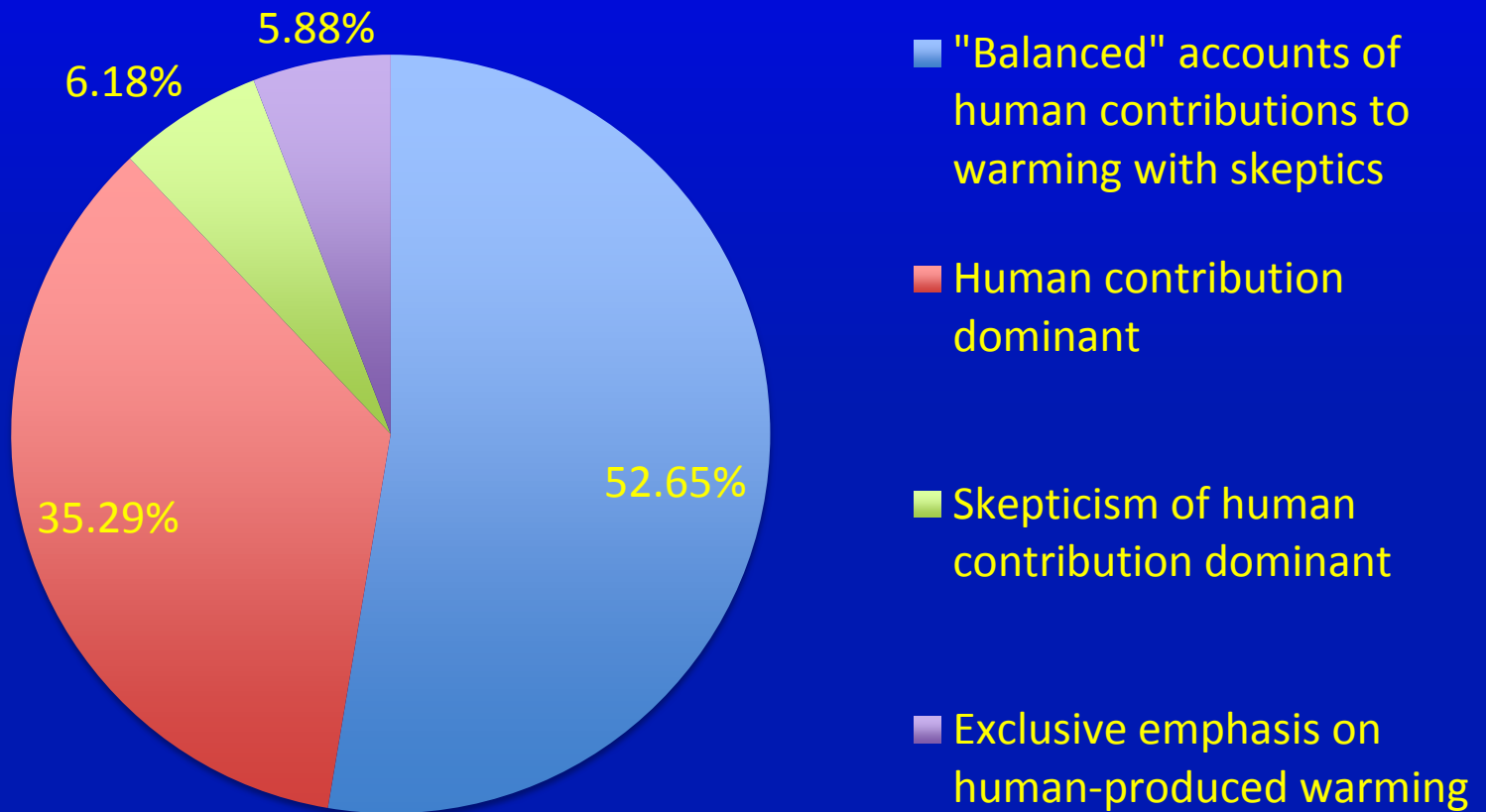
^a*Environmental Studies Department, University of California, Santa Cruz, Interdisciplinary Sciences Building,
1156 High Street, Santa Cruz, CA 95064, USA*

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- Boykoff and Boykoff (2004) examined the climate coverage of four major U.S. newspapers from 1988-2002 [ref 9]
 - New York Times, Wall Street Journal, Washington Post, and Los Angeles Times
- “Balance:” Equal weight to opposing views

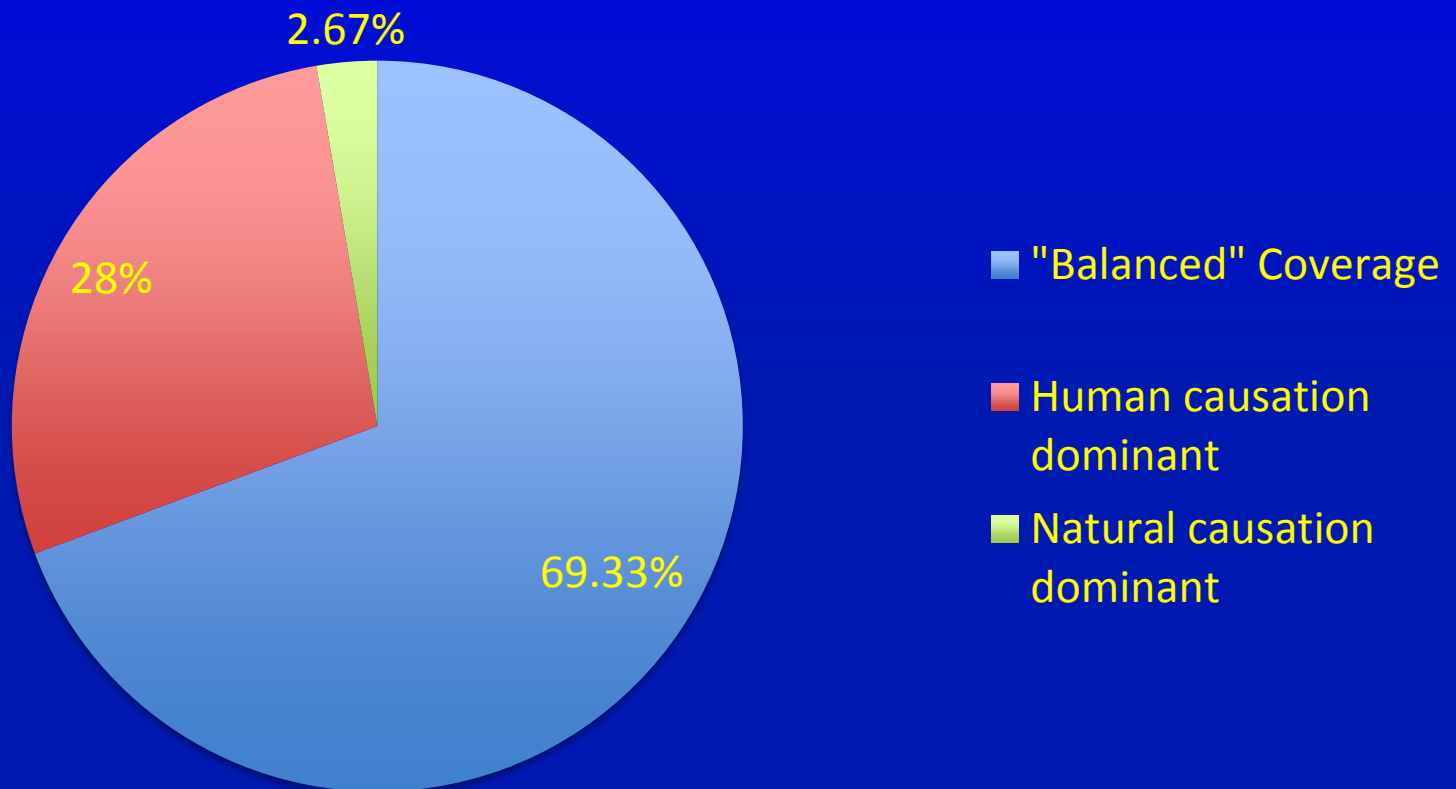
Boykoff & Boykoff's data

% of Newspaper Articles



What about TV?

Network News Coverage of Climate Change, 1995-2004



Balance is a Form of Bias

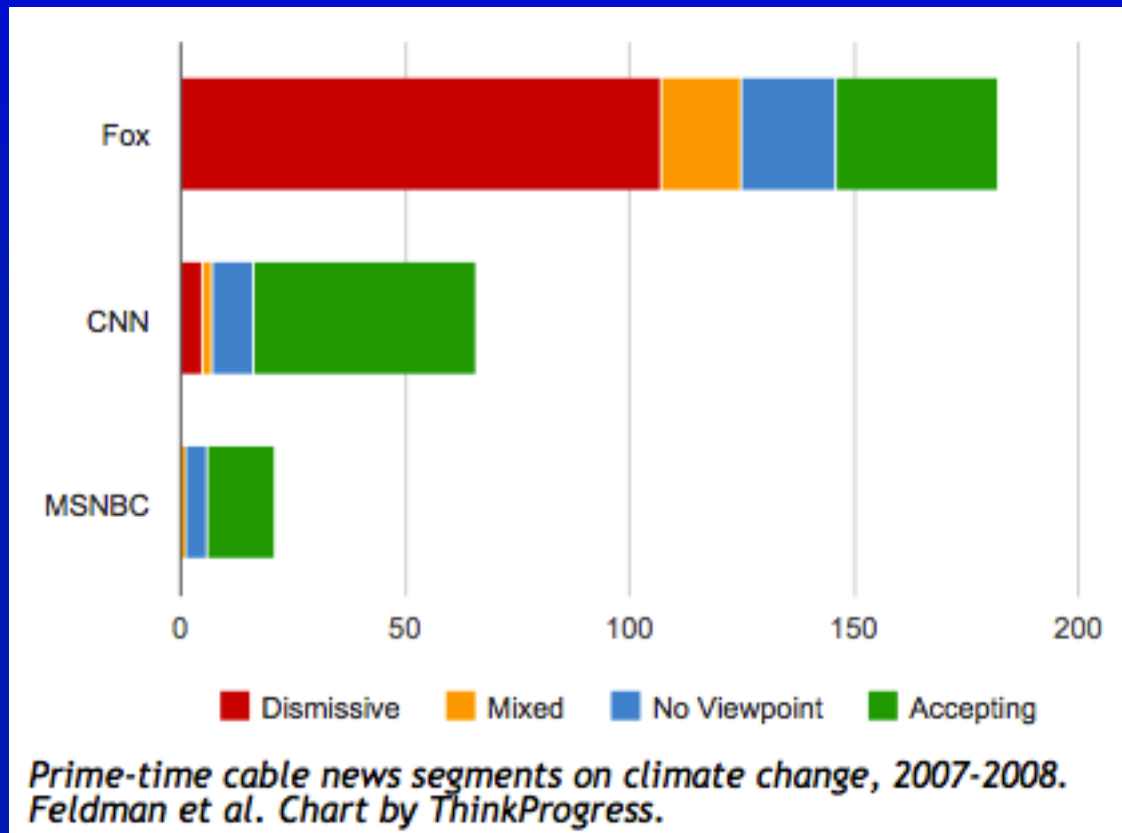
- Produces the *appearance* of controversy
- Emphasizes views of a handful of *contrarians*
- Ignores expert consensus
 - Recall that health effects of smoking were still controversial in mid-1990s despite having been proven in the '40s and '50s.

But the Media Landscape is Changing

- “Balanced” reporting of climate is declining at the 5 major newspapers [[ref 14](#)]
- Paralleled by spread of *partisan media*
- What impacts on climate knowledge do these have?

Partisan Media Effects

Cable News Analysis, 2007-2008



Ref. 11

Does Media Bias Matter?

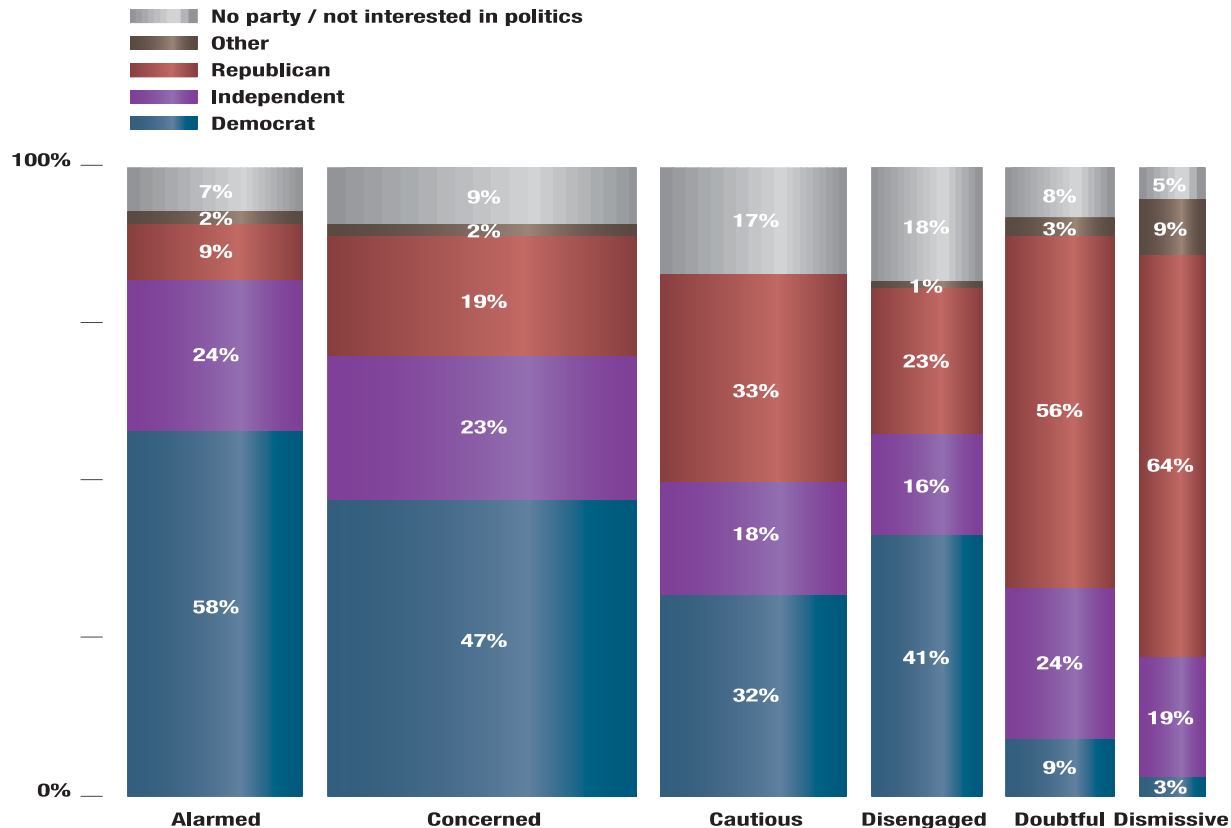
- It's complicated. . .
- Republicans watching Fox less likely to accept evidence of climate change
- Republicans watching MSNBC more likely to accept
- BUT NO EFFECT on Democrats watching any cable station. . . [Ref. 11]

Does Media Bias Matter?

Figure 29: Party identification

Generally speaking, do you think of yourself as a...

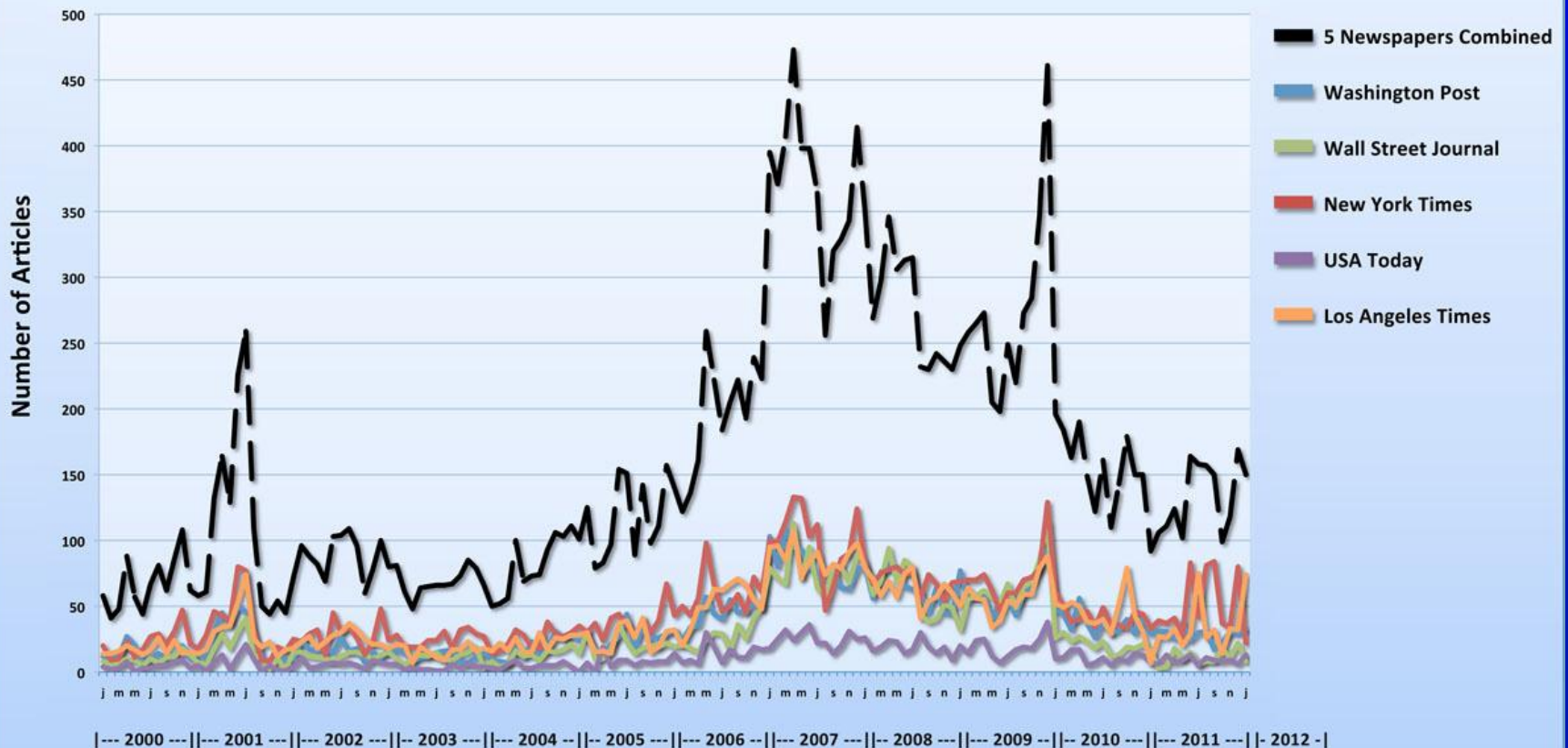
- Republican
- Democrat
- Independent
- Other (please specify)
- No party/not interested in politics



Source: Maibach, Roser-Renouf, and Leiserowitz, 2009, Ref 12.

Sinking Media Coverage

2000-2012 US Newspaper Coverage of Climate Change or Global Warming



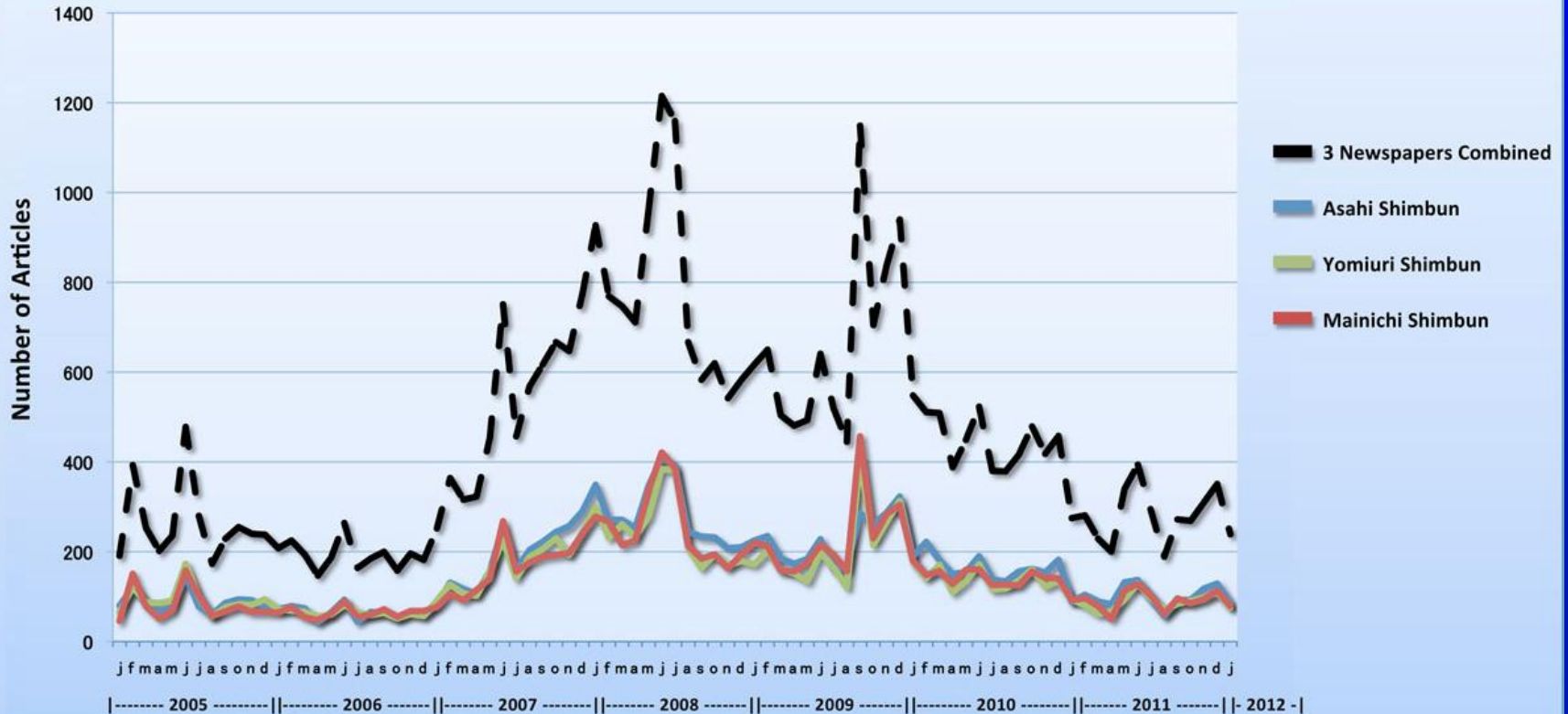
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Japan Coverage



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